

WHAT IS CLAIMED IS:

1. A positioning system for use in adjusting the position of a workpiece, comprising:

a light source for directing a light beam onto the top surface of said workpiece; and,

a detector coupled to said light source for detecting the light beam received by said workpiece, and for processing a deviation direction and a deviation amount based on a positional relationship between an image of said light beam received on the surface of said workpiece and a predetermined reference image.

2. The system of claim 1, further comprising a holding means for releasably holding said workpiece and for vertically adjusting the position of said workpiece based on said deviation direction and said deviation amount.

3. The system of claim 2, wherein said holding means is adapted to vertically displace said workpiece so that the image of said detected light beam on the top surface of said workpiece matches said predetermined reference image.

4. The system of claim 1, wherein said detector is located above a normal axis associated with said workpiece.

5. The system of claim 1, wherein said light source comprises a liquid crystal

display.

6. The system of claim 1, wherein said detector comprises a photodiode camera.

7. A method for adjusting the vertical position of a workpiece, said method comprising the steps of:

- transmitting a light beam onto the top surface of said workpiece at a predetermined angle relative to a normal axis associated with said workpiece;
- detecting the light beam projected on the top surface of said workpiece;
- determining a center point of said detected light beam;
- determining a lateral distance between the center point of said detected light beam and a predetermined reference point;
- converting said determined lateral distance to a corresponding vertical distance using trigonometry;

8. The method of claim 7, further comprising the step of positioning said workpiece based on said converted vertical distance.

9. The method of claim 7, wherein the step of determining the center point of said detected light beam further comprises the steps of:

monitoring a boundary of said first image;

generating signals representing positions of said boundary; and,

evaluating said signals for determining the center point of said boundary.

10. A positioning system for use in adjusting the position of a workpiece, comprising:

a light generating means for projecting a light beam onto the top surface of said workpiece at a predetermined angle;

a video capturing means for detecting the light received by said workpiece and for converting the detected light into electrical signals; and,

a computer means for processing a deviation direction and a deviation amount based on a positional relationship between a digital image of said projected light on the surface of said workpiece and a predetermined reference image.

11. The system of claim 10, further comprising a means for releasably holding said workpiece in a substantially horizontal orientation and for moving said workpiece in the X-Y plane to a preselected position.

12. The system of claim 10, wherein said holding means is adapted to vertically displace said workpiece so that the detected light received by said workpiece matches said predetermined reference image.

13. The system of claim 10, wherein said computer means determines a lateral shift direction and a amount of lateral displacement of said projected light within the surface of said workpiece.

14. The system of claim 10, wherein said light generating means comprises a liquid crystal display.

15. The system of claim 10, wherein said video capturing means comprises a photodiode camera.

16. A method for adjusting the vertical position of a workpiece, said method comprising the steps of:

projecting a first light beam onto the top surface of said workpiece to generate a first image;

projecting a second light beam onto the top surface of said workpiece to generate a second image;

using said first and second light beams to provide an indication of distance between said first and second images received by said workpiece; and,

adjusting the vertical position of said workpiece such that said first and second images coincide.

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